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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,707	09/30/2003	May Tom-Moy	10031347-1	8124

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AGILENT TECHNOLOGIES, INC.
Legal Department, DL429
Intellectual Property Administration
P.O. Box 7599
Loveland, CO 80537-0599

EXAMINER

CHIN, CHRISTOPHER L

ART UNIT	PAPER NUMBER
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1641

MAIL DATE	DELIVERY MODE
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12/27/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/676,707

Applicant(s)

TOM-MOY ET AL.

Examiner

Christopher L. Chin

Art Unit

1641

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10, 11 and 13-15 is/are rejected.
- 7) ☒ Claim(s) 9 and 12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is vague. Step (b) recites applying a source of metal ions which provides an observable property that is used to detect the target in step (f). However, the claim is not clear as to how the metal ions are related to the target to provide for detection of the target. As recited now, the claimed method would detect target regardless if target is actually present or not. Step (b) applies the metal ions and a change is detected regardless of the presence or absence of target. It would appear that claims 3-5 should be incorporated into claim 1 to provide the necessary relationship between the metal ions and target.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-5, 7, 8, 10, 11, 13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al (Science, 2002) as evidenced by Fluke Corporation (Fluke

Model 187 & 189 True RMS Multimeter Users Manual, 2000) and in view of Eggers et al (US Patent 5,891,630).

See the previous office action for the teachings of Park et al.

Park et al fails to teach a substrate comprising integrated addressing circuitry in operable relation to each of the plurality of features and fails to teach the step of providing a signal to the addressing circuitry to select one of the pluralities of features to be interrogated.

See the previous office action for the teachings of Eggers et al.

It would have been obvious to one of ordinary skill in the art to modify the method and apparatus of Park with detection circuitry 16 on-chip, as taught by Eggers, in order to enable fast detection of hybridization for large DNA probe arrays. The detection circuitry of Eggers provides an advantage over the multimeter of Park because the detection circuitry of Eggers is able to interrogate a large number of electrode pairs in a short amount of time, whereas the handheld multimeter of Park would require a large amount of time to test each electrode pair in a large array. In addition, one of ordinary skill in the art at the time of the invention would have had reasonable expectation of success in adding the detection circuitry of Eggers to the device of Park because Park teaches dual electrodes to detect hybridization in an array and the detection circuitry of Eggers is connected to a plurality of electrode pairs that also detect hybridization.

With respect to claims 3-5, Park teaches that the target oligonucleotide is attached to Au nanoparticles at one end (i.e. gold nanoparticles label) and that Ag(I) and hydroquinone is added after the binding of target and capture oligonucleotides (i.e.

attaching a label to target prior to applying the enhancement reaction (page 1503 and Figure 1).

With respect to claim 11, Eggers teaches circuitry for processing information related to target detection (col. 4, lines 31-33).

With respect to a pad of resistive material disposed on a substrate between first and second electrodes wherein a probe is on the pad of resistive material, the layer of SMPB-modified silicon dioxide that supports the oligonucleotide capture probe in Park is considered to read on the pad of resistive material recited in the instant invention. Since the claims fail to recite any specific resistive material, the SMPB-modified silicon dioxide in Park is considered a resistive material.

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al (Science, 2002) as evidenced by Fluke Corporation (Fluke Model 187 & 189 True RMS Multimeter Users Manual, 2000) and in view of Eggers et al (US Patent 5,891,630) as applied to claims 1-5, 7, 8, 10, 11, 13, and 14 above, and further in view of Cheung (US Patent 5,132,242).

Park and Eggers have been discussed above.

Park and Eggers further differ from the instant invention in failing to teach that the label is attached to the target via a biotin-avidin conjugate binding pair.

Cheung teaches conjugation of DNA to microspheres using avidin and biotin in order to take advantage of the strong non-covalent interaction between avidin and biotin (col. 10, lines 46-53).

It would have been obvious to one of ordinary skill in the art to modify the method of Park and Eggers with the use of avidin/biotin, as taught by Cheung, to conjugate DNA to the nanoparticles because the high binding affinity of avidin for biotin provides for strong attachment of DNA to the nanoparticles.

5. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al (Science, 2002) as evidenced by Fluke Corporation (Fluke Model 187 & 189 True RMS Multimeter Users Manual, 2000) and in view of Eggers et al (US Patent 5,891,630) as applied to claims -5, 7, 8, 10, 11, 13, and 14 above, and further in view of Sandstrom (US Patent 6,545,758).

Park and Eggers have been discussed above.

Park and Eggers further differ from the instant invention in failing to teach at least one reference feature in operable relation to the addressing circuitry.

Sandstrom teaches control sites on a microarray in order to compare experimental probe sites to a reference or purposefully mismatched site for eliminating signal from background signal and nonspecific hybridization (col. 4, line 61, to col. 5, line 17).

It would have been obvious to one of ordinary skill in the art to modify the device of Park and Eggers with control sites on a microarray, as taught by Sandstrom, because the control sites provide the advantage of eliminating signals from background signal and nonspecific hybridization.

Allowable Subject Matter

6. Claims 9 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

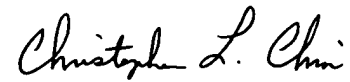
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher L. Chin whose telephone number is (571) 272-0815. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on (571) 272-0823. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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A handwritten signature in black ink, reading "Christopher L. Chin". The signature is written in a cursive style with a large, stylized "L" and "C".

Christopher L. Chin
Primary Examiner
Art Unit 1641

12/22/07